

ORDINANCE NO. 2480

INTRODUCED BY: - - ALLEN-THOMAS, CHACON, DOUGLAS, FORD, HURST,
HUSEMAN, KIM, MADERA, NOBLE

AN ORDINANCE REPEALING AND REPLACING CHAPTER 5, ARTICLE IV, DIVISION 2 OF THE COMMERCE CITY REVISED MUNICIPAL CODE WHICH DETAILS THE ADOPTION OF THE 2021 INTERNATIONAL RESIDENTIAL CODE (IRC) WITH CITY-CENTRIC AMENDMENTS

WHEREAS, the purpose of this and related ordinances is to update the city's building code, adopt changes made in the various 2021 editions of the International Codes, apply city-specific revisions to the adopted codes, and to simplify, consolidate, and clarify the city's building code support functions such as appeals, violations, contractor licenses, fees and third-party services;

WHEREAS, the 2021 IRC, as amended by the City of Commerce City ("City"), is retitled the City of Commerce City Residential Code and establishes minimum standards for the construction of single family dwellings up to three stories;

WHEREAS, City Council desires to retain provisions concerning the fire protection of floors in the IRC;

WHEREAS, for the safety of Commerce City residents and all of those visiting the City, City Council desires to retain provisions concerning the placement of residential sprinklers for townhouses;

WHEREAS, for the same safety reasons, City Council desires to require residential sprinklers for detached single family dwellings with a fire separation distance (distance to property line) of less than 8 feet;

WHEREAS, to reduce the cost of construction and limit impact to the South Adams County Water and Sanitation District, the IRC is being amended to require the method to install residential sprinklers, whether by mandate or voluntary, be in accordance with the IRC only and not require a separate water meter;

WHEREAS, City Council desires the IRC to be amended to restrict the combustibility (flamespread) of a home's exterior wall covering for walls 5 feet or less from a property line;

WHEREAS, City Council desires to adopt Appendix AT of the IRC which will require new homes to be "solar-ready" for future installments of solar equipment;

WHEREAS, City Council desires that the energy conservation provisions of the 2018 IRC continue to be accepted unless and until the state mandates the energy conservation provisions of the 2021 IRC;

WHEREAS, to protect occupants with window wells deeper than 30 inches, the IRC is

being amended to require window well covers that are capable of resisting human load; and

WHEREAS, to protect homes against water infiltration from freeze/thaw cycles of roof snow melt, the IRC is being amended to require ice damming prevention.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF COMMERCE CITY, COLORADO, AS FOLLOWS:

SECTION 1. Findings. The recitals to this ordinance are incorporated as findings of the City Council. This ordinance is found to be necessary for the preservation of the public health, safety, and welfare and in the public interest.

SECTION 2. Amendments. Chapter 5, Article IV, Division 2 of the Commerce City Revised Municipal Code is hereby repealed and replaced as set forth in Exhibit A.

SECTION 3. Repealer. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency.

SECTION 4. Effective Date. This ordinance shall be effective as provided in the City Charter.

INTRODUCED, PASSED ON FIRST READING AND PUBLIC NOTICE ORDERED THIS 17TH DAY OF APRIL, 2023.

PASSED ON SECOND AND FINAL READING AND PUBLIC NOTICE ORDERED THIS 15TH DAY OF MAY, 2023.

CITY OF COMMERCE CITY, COLORADO

Benjamin A. Huseman, Mayor

ATTEST

Dylan A. Gibson, City Clerk

CHAPTER 5 – BUILDINGS AND BUILDING REGULATIONS
ARTICLE IV. INTERNATIONAL CODES

...
DIVISION 2. – INTERNATIONAL RESIDENTIAL CODE

Sec. 5-4200. – Adoption.

The City of Commerce City adopts the 2021 edition of the International Residential Code (IRC) to be known as the City of Commerce City Residential Code, including Appendix Chapters AH, AI, AJ, AK, AM, AQ, AR, AS, AT, AU and AW and the standards referenced in such code and appendix chapters, save and except such amendments as set forth in this article. The IRC is available to view for free on the International Code Council's website.

Sec. 5-4201. – Amendments.

The 2021 edition of the IRC is amended in the following respects and adopted herein as amended:

- (a) *Section R101.1, entitled "Title," is amended to read as follows:*

R101.1 Title. These provisions, as part of the City of Commerce City Building Code, shall be known as the City of Commerce City Residential Code, hereinafter referred to as "this code."

- (b) *Section R102.2, entitled "Other laws," is amended by addition of the following:*

In the event of a conflict between the provisions of this code and any county health department, state or federal law, rule or regulation the more restrictive provision shall control.

- (c) *Section R102.8, entitled "Exemptions," is added to read as follows:*

R102.8 Exemptions. The work listed in Section 5-5 of the Commerce City Revised Municipal Code shall be exempt from this code.

- (d) *Section R103, entitled "DEPARTMENT OF BUILDING SAFETY," is deleted in its entirety.*

- (e) *Section R104.6, entitled "Right of entry," is deleted in its entirety and the following is added in lieu thereof:*

R104.6 Right of entry. The building official's right to enter and inspect property shall be exercised in accordance with Section 1-3001 of the Commerce City Revised Municipal Code.

- (f) *Section R104.10, entitled "Modifications," is amended to read as follows:*

R104.10 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, upon application of the owner or the owner's

authorized agent, provided that the building official shall first find that a special individual reason makes the strict letter of this code impractical, the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, energy and resource conservation or structural requirements. The building official may require or may consider a statement from a registered design professional or subject matter expert as to the equivalency of the proposed modification. The building official may also consider nationally recognized guidelines in deciding whether to approve a modification. The details of action granting modifications shall be recorded and entered in the files of the Community Development Department.

- (g) *Section R105.1, entitled "Required," is amended to read as follows:*

R105.1 Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish, change the occupancy or move the lot line of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the building official and obtain the required permit.

- (h) *Section R105.2, entitled "Work exempt from permit," is deleted in its entirety and the following is added in lieu thereof:*

R105.2 Work exempt from permit. Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for the work listed in Section 5-8 of the Commerce City Revised Municipal Code.

- (i) *Section R105.2.3, entitled "Public service agencies," is amended to read as follows:*

R105.2.3 Public service agencies. A permit shall not be required for the installation, alteration or repair of generation, transmission, distribution, metering or other related equipment that is under the ownership and control of public service agencies by established right or by public service agencies or utilities regulated by the state of Colorado Public Utilities Commission.

- (j) *Section R105.6, entitled "Suspension or revocation," is amended to read as follows:*

R105.6 Suspension or revocation. The building official is authorized to suspend or revoke a permit issued under the provisions of this code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any city, state or federal law, ordinance or regulation or any of the provisions of this code.

- (k) *Section R106.1, entitled “Submittal documents,” is amended to read as follows:*

R106.1 Submittal documents. Submittal documents consisting of construction documents and other data shall be submitted in digital format with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

Exception: The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with this code or if the applicant agrees to utilize city-developed typical construction details in lieu of submitted documents.

- (l) *Section R106.1.1, entitled “Information on construction documents,” is amended to read as follows:*

R106.1.1 Information on construction documents. Construction documents shall be dimensioned and of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the building official.

- (m) *Section R106.1.6, entitled “Engineering details,” is added to read as follows:*

R106.1.6 Engineering details. When determined necessary by the building official, construction documents shall include adequate detail of the structural, mechanical, plumbing or electrical components. Adequate detail may include computations, stress diagrams or other essential technical data. All engineered documents, including relevant computations, shall be sealed by the registered design professional responsible for the design.

- (n) *Section R106.3, entitled “Examination of documents,” is amended by addition of the following:*

If such documents or plans do not comply with the provisions of this code, the permit applicant shall be notified in writing of the reasons and corresponding sections of this code that serve as the basis for non-compliance.

- (o) *Section R106.3.1, entitled “Approval of construction documents,” is amended to read as follows:*

R106.3.1 Approval of construction documents. Where the building official issues a permit, the construction documents shall be approved by a stamp that states “Reviewed for Code Compliance” or an equivalent endorsement. A copy of the

construction documents so reviewed shall be retained by the building official. A copy shall be returned to the applicant, printed in full scale, kept at the site of work and open to inspection by the building official or a duly authorized representative.

- (p) *Section R106.5, entitled "Retention of construction documents," is amended to read as follows:*

R106.5 Retention of construction documents. A copy of approved construction documents shall be retained by the building official as required by state or local laws.

- (q) *Section R108, entitled "FEES" is deleted in its entirety and the following is added in lieu thereof:*

SECTION R108 - FEES

R108.1 Payment of fees. At the discretion of the city, a permit shall not be valid until the fees prescribed by Article VI, Chapter 5 and other applicable provisions of the Commerce City Revised Municipal Code have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

- (r) *Section R109, entitled "INSPECTIONS," is deleted in its entirety and the following is added in lieu thereof: xx*

SECTION R109 - INSPECTIONS

R109.1 General. Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain visible and be accessible for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the owner or the owner's authorized agent to cause the work to remain visible and accessible for inspection purposes. Neither the building official nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

R109.1.1 Equipment required. Any ladder, scaffolding or test equipment necessary to conduct or witness a requested inspection shall be provided by the permit holder.

R109.2 Required inspections. The building official, upon notification, shall make the inspections set forth in Sections R109.2.1 through R109.2.6.

R109.2.1 Foundation inspection. Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall

include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports or equipment and special requirements for wood foundations.

R109.2.2 Plumbing, mechanical, gas and electrical systems inspection.

Rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealment, before fixtures or appliances are set or installed and prior to framing inspection.

Exception: Backfilling of ground-source heat pump loop systems tested in accordance with Section M2105.28 prior to inspection shall be permitted.

R109.2.3 Floodplain inspections. For construction in flood hazard areas as established by Table R301.2, upon placement of the lowest floor, including basement, and prior to further vertical construction, the building official shall require submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including basement, required in Section R322.

R109.2.4 Frame and masonry inspection. Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are approved.

R109.2.5 Other inspections. In addition to inspections in Sections R109.2.1 through R109.2.4, the building official shall have the authority to make or require any other inspections to ascertain compliance with this code and other laws enforced by the building official.

R109.2.5.1 Fire-resistance-rated construction inspection. Where fire-resistance-rated construction is required between dwelling units or due to location on property, the building official shall require an inspection of such construction after lathing or gypsum board or gypsum panel products are in place, but before any plaster is applied, or before board or panel joints and fasteners are taped and finished.

R109.2.6 Final inspection. Final inspection shall be made after the permitted work is complete and prior to occupancy.

R109.2.6.1 Elevation documentation. If located in a flood hazard area, the documentation of elevations required in Section R322.1.10 shall be submitted to the building official prior to the final inspection.

R109.3 Inspection agencies. The building official is authorized to accept reports of approved agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

R109.4 Inspection requests. It shall be the duty of the permit holder or their agent to notify the building official that such work is ready for inspection. It shall be the duty of the person requesting any inspections required by this code to provide access to and means for inspection of such work.

R109.5 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the building official. The building official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is

satisfactory as completed, or shall notify the permit holder or an agent of the permit holder the reasons and corresponding code sections of this code that serve as the basis for non-compliance. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the building official.

- (s) *Section R112, entitled “BOARD OF APPEALS,” is deleted in its entirety and the following is added in lieu thereof:*

SECTION R112 - APPEALS

R112.1 Board of appeals. Appeals of the decisions of the building official relating to the application and interpretation of this code shall be to the board of appeals and governed by Section 5-21 of the Commerce City Revised Municipal Code.

- (t) *Section R113, entitled “VIOLATIONS,” is deleted in its entirety and the following is added in lieu thereof:*

SECTION R113 - VIOLATIONS

R113.1 Unlawful acts. No person or entity shall violate a provision of this code or fail to comply therewith or with any of the requirements thereof. No person or entity shall fail to comply with any order issued by the building official under this code. No person or entity shall erect, construct, enlarge, alter, extend, repair, move, remove, improve, convert, demolish, equip, use, occupy or maintain any building or structure in the city or cause or permit the same to be done except in conformity with all of the provisions of this code and in conformity with the terms and conditions of any permit, certificate or other approval issued under this code, or of any directive of the building official.

R113.2 Penalties and enforcement. Violations of this code are subject to enforcement through the penalties, procedures and remedies specified in Article V, Chapter 5 and other applicable provisions of the Commerce City Revised Municipal Code, at the discretion of the city.

- (u) *Section R114, entitled “STOP WORK ORDER,” is deleted in its entirety and the following is added in lieu thereof:*

SECTION R114 - STOP WORK ORDER

R114.1 General. Where the building official finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or in a manner that is dangerous or unsafe, the building official is authorized to issue a stop work order in accordance with the provisions of Section 5-5007 of the Commerce City Revised Municipal Code.

- (v) *The definition for “ACCEPTED ENGINEERING PRACTICE” is added to Section R202 to read as follows:*

ACCEPTED ENGINEERING PRACTICE. An engineered design or analysis performed by a registered design professional that conforms to nationally recognized principles, testing or standards; meets the functional intent of this code; and is approved by the building official.

- (w) *The definition for “EXISTING BUILDING” is added to Section R202 to read as follows:*

EXISTING BUILDING. A building erected prior to the date of adoption of the appropriate code or one for which a legal building permit has been issued.

- (x) *The definition for “EXISTING STRUCTURE” is added to Section R202 to read as follows:*

EXISTING STRUCTURE. A structure erected prior to the date of adoption of the appropriate code or one for which a legal building permit has been issued.

- (y) *The definition for “FIRE SEPARATION DISTANCE” is amended in Section R202 to read as follows:*

FIRE SEPARATION DISTANCE. The distance measured from the finished surface of the building face to one of the following:

1. To the closest interior lot line.
2. To the centerline of a street, an alley or public way.
3. To an imaginary line between two buildings on the lot.

The distance shall be measured at a right angle from the face of the wall.

- (z) *The definition for “TOWNHOUSE” is amended in Section 202 to read as follows:*

TOWNHOUSE. A building that contains two or more attached townhouse units.

- (aa) *The definition for “UNVENTED ALCOHOL FUEL-BURNING DECORATIVE APPLIANCE” is added to Section 202 to read as follows:*

UNVENTED ALCOHOL FUEL-BURNING DECORATIVE APPLIANCE. A stationary, self-contained appliance intended to be directly or indirectly secured to a wall or floor and not intended for duct connection. Such appliance burns alcohol and is made in a manufacturing facility for subsequent delivery to the installation site.

- (bb) *Table R301.2, entitled “CLIMATE GEOGRAPHIC DESIGN CRITERIA,” is deleted in its entirety and the following is added in lieu thereof:*

TABLE R301.2
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

Ground snow load	35 psf
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Wind design	Wind Speed	115 mph
	Topographic Effects	No
	Special Wind Region	No
	Windborne Debris Zone	No
Seismic Design Category		B
Subject to damage from	Weathering	Severe
	Frost Line Depth	36 inches
	Termite	Slight to moderate
Ice barrier underlayment required		Yes
Flood hazards		1978 (date of entry in NFIP) 2007/2017 (current FIRM map revision date)
Air freezing index		≤1,500° F
Mean annual temp		50° F
MANUAL J DESIGN CRITERIA		
Elevation		5,160 feet
Latitude		40
Altitude correction factor		0.84
Coincident wet bulb		60° F
Indoor winter design relative humidity		30 percent
Indoor winter design dry-bulb temperature		70° F
Outdoor winter design dry-bulb temperature		7° F
Heating temperature difference		63° F
Daily range		High
Indoor summer design relative humidity		50 percent
Summer design grains		-35
Indoor summer design dry-bulb temperature		75° F
Outdoor summer design dry-bulb temperature		92° F

Cooling temperature difference	17° F
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For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

(cc) *Table R302.1(1), entitled “EXTERIOR WALLS,” is amended to read as follows:*

**TABLE R302.1(1)
EXTERIOR WALLS**

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.3 of the International Building Code with exposure from both sides	0 feet to < 5 feet
	Not fire-resistance rated	0 hours with exterior wall coverings having a maximum flame spread rating of 75 tested in accordance with ASTM E84 (UL 723)	≥ 5 feet
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood ^{a, b}	≥ 2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Openings in walls	Not allowed	NA	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

- a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

(dd) *Table R302.1(2), entitled “EXTERIOR WALLS – DWELLINGS WITH FIRE SPRINKLERS,” is amended to read as follows:*

**TABLE R302.1(2)
EXTERIOR WALLS**

EXTERIOR WALL ELEMENT	MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
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Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.3 of the International Building Code with exposure from both sides	0 feet to < 3 feet
	Not fire-resistance rated	0 hours with exterior wall coverings having a maximum flame spread rating of 75 tested in accordance with ASTM E84 (UL 723)	≥ 3 feet ^a
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood ^{b, c}	≥ 2 feet ^a to < 3 feet
	Not fire-resistance rated	0 hours	≥ 3 feet
Openings in walls	Not allowed	NA	< 3 feet
	Unlimited	0 hours	≥ 3 feet ^a
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	≥ 3 feet ^a

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

- a. For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the fire separation distance for exterior walls not fire-resistance rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.
- b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
- c. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

(ee) *Section R302.2.6, entitled “Structural independence,” is amended to read as follows:*

R302.2.6 Structural independence. Each townhouse unit shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit fastened to the common wall framing.
3. Nonstructural wall and roof coverings.
4. Flashing at termination of roof covering over common wall.
5. Townhouse units separated by a common wall as provided in Section

R302.2.2, Item 1 or 2.

6. Townhouse units protected by a fire sprinkler system complying with Section P2904.

(ff) *Section R302.3, entitled "Two-family dwellings," is amended to read as follows:*

R302.3 Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

Exceptions:

1. A fire-resistance rating of ½ hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904.
2. Wall assemblies need not extend through attic spaces where the ceiling is protected by not less than 5⁄8-inch (15.9 mm) Type X gypsum board, an attic draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the dwellings and the structural framing supporting the ceiling is protected by not less than ½-inch (12.7 mm) gypsum board or equivalent.

(gg) *Section R302.13, entitled "Fire protection of floors," is amended to read as follows:*

R302.13 Fire protection of floors. Floor assemblies that are not required elsewhere in this code to be fire-resistance rated shall be provided with a ½-inch (12.7 mm) gypsum wallboard membrane, 5⁄8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

Exceptions:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904.
2. Floor assemblies located directly over a crawl space not intended for storage or for the installation of fuel-fired or electric-powered heating appliances.
3. Portions of floor assemblies shall be permitted to be unprotected where complying with the following:

3.1. The aggregate area of the unprotected portions does not exceed 80 square feet (7.4 m²) per story.

3.2. Fireblocking in accordance with Section R302.11.1 is installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

(hh) *Section R310.4.4, entitled “Bars, grilles, covers and screens,” is deleted in its entirety and replaced with the following in lieu thereof:*

R310.4.4 Area well fall protection. Area wells deeper than 30 inches (762 mm), measured vertically from adjacent grade, shall be equipped with bars, grills, covers or similar in accordance with Section R310.4.5 and shall be capable of resisting a 40 psf (1.92 kPa) live load in accordance with Section R301.5.

(ii) *Section R310.4.5, entitled “Bars , grilles, covers and screens,” is added to read as follows:*

R310.4.5 Bars, grilles, covers and screens. Where bars, grilles, covers, screens or similar devices are placed over emergency escape and rescue openings, bulkhead enclosures or area wells that serve such openings, the minimum net clear opening size shall comply with Sections R310.2 through R310.2.2 and R310.4.1. Such devices shall be releasable or removable from the inside without the use of a key or tool or force greater than that required for the normal operation of the escape and rescue opening.

(jj) *Section R312.2.1, entitled “Window opening height,” is amended to read as follows:*

R312.2.1 Window opening height. In dwelling units, where the bottom of the clear opening of an operable window opening is located less than 24 inches (610 mm) above the finished floor, furred wall, fixed seat, step, landing or similar and greater than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable window openings will not allow a 4-inch-diameter (102 mm) sphere to pass through where the openings are in their largest opened position.
2. Operable windows are provided with window opening control devices or fall prevention devices that comply with ASTM F2090.

(kk) *Section R313.1.1, entitled “Design and installation,” is amended to read as*

follows:

R313.1.1 Design and installation. Automatic sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904.

- (ll) *Section R313.2, entitled “One- and two-family dwellings automatic sprinkler systems,” is amended to read as follows:*

R313.2 One- and two-family dwellings automatic sprinkler systems. An automatic sprinkler system shall be installed in one- and two-family dwellings with a fire separation distance of less than 8 feet (2440 mm) at any location along the building perimeter.

Exception: An automatic sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with a sprinkler system.

- (mm) *Section R313.2.1, entitled “Design and installation,” is amended to read as follows:*

R313.2.1 Design and installation. Automatic sprinkler systems shall be designed and installed in accordance with Section P2904.

- (nn) *Section R315.1, entitled “General,” is deleted in its entirety and replaced with the following in lieu thereof:*

R315.1 General. Carbon monoxide alarms shall be installed and maintained as required by and in compliance with Article 45 of Title 38 of the Colorado Revised Statutes.

- (oo) *Section R324.6.2.1, entitled “Alternate setback at ridge,” is amended to read as follows:*

R324.6.2.1 Alternative setback at ridge. Where an automatic sprinkler system is installed within the dwelling in accordance with Section P2904, setbacks at ridges shall comply with one of the following:

1. For photovoltaic arrays occupying not more than 66 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge.
2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge.

- (pp) *Section R401.3.1, entitled “Grading performance certification,” is added to read as follows:*

R401.3.1 Grading performance certification. Prior to issuance of a certificate of occupancy or temporary certificate of occupancy, a grading performance certificate shall be submitted to the building official. The document shall be prepared by a

Colorado-licensed professional land surveyor or professional engineer and shall contain the land surveyor's or engineer's seal, date and electronic signature. The grading performance certificate shall indicate and affirm the following:

1. Lot grading type as depicted in the city approved grading and drainage plan for the lot or site.
2. Top of foundation (not top of finished floor) elevation.
3. Direction of storm-water flows using directional icons or indicators.
4. Final/finished lot grade elevations at lot corners and all sides of the building envelope.
5. All final/finished lot grading high points.
6. Swales constructed in accordance with the city approved grading and drainage plan for the lot or site.
7. Percent slopes within the first 10 feet (3048 mm) of the building envelope and on all sides of the building indicating conformance with Section R401.3 or the exception thereto.
8. Other surface drainage improvements constructed or installed to comply with Section R401.3 or the exception thereto.
9. A certification statement that the lot or site has been inspected by the professional land surveyor or professional engineer who prepared the grading performance certificate or a person under their responsible charge and direct supervision.
10. A certification statement the lot grading and drainage is in conformance with the city approved grading and drainage plan for the lot or site.

(qq) *Section R403.1, entitled "General," is amended by the addition of the following:*

Exception: One-story, detached and unheated accessory structures used as tool or storage sheds, playhouses and similar uses but not used for the parking or storage of motor vehicles, provided the floor area does not exceed 400 square feet (37.2 m²). Such structures may be supported on 4x4 "skids" protected against decay in accordance with Section R317 and incorporated into the floor's supporting system at intervals not to exceed 4 feet (1219 mm) on center. Such structures shall be anchored to the ground with approved materials to resist all applied loads.

(rr) *Section R602.10, entitled "Wall bracing," is amended by the addition of the following:*

The building official shall be permitted to require the permit applicant to identify braced wall lines and braced wall panels on the construction documents as described in this section and provide associated analysis. The building official shall be permitted to waive the analysis of the upper floors where the cumulative length of wall openings of each upper floor wall is less than or equal to the length of the openings of the wall directly below.

(ss) Table R602.10.3(2), entitled “WIND ADJUSTMENT FACTORS TO THE REQUIRED LENGTH OF WALL BRACING” is amended to read as follows:

TABLE R602.10.3(2)
WIND ADJUSTMENT FACTORS TO THE REQUIRED LENGTH OF WALL BRACING

ITEM NUMBER	ADJUSTMENT BASED ON	STORY/SUPPORTING	CONDITION	ADJUSTMENT FACTOR ^{a, b} [multiply length from Table R602.10.3(1) by this factor]	APPLICABLE METHODS
1	Exposure category ^d	One-story structure	B	1.00	All methods
			C	1.20	
			D	1.50	
		Two-story structure	B	1.00	
			C	1.30	
			D	1.60	
		Three-story structure	B	1.00	
			C	1.40	
			D	1.70	
2	Roof eave-to-ridge height	Roof only	≤ 5 feet	0.70	
			10 feet	1.00	
			15 feet	1.30	
			20 feet	1.60	
		Roof + 1 floor	≤ 5 feet	0.85	
			10 feet	1.00	
			15 feet	1.15	
			20 feet	1.30	
		Roof + 2 floors	≤ 5 feet	0.90	
			10 feet	1.00	
			15 feet	1.10	
			20 feet	Not permitted	
3	Story height (Section R301.3)	Any story	8 feet	0.90	
			9 feet	0.95	
			10 feet	1.00	
			11 feet	1.05	
			12 feet	1.10	
4	Number of braced wall lines (per plan direction) ^c	Any story	2	1.00	
			3	1.30	
			4	1.45	
			≥ 5	1.60	
5	Additional 800-pound hold-down device	Top story only	Fastened to the end studs of each	0.80	DWB, WSP, SFB, PBS, PCP, HPS

			braced wall panel and to the foundation or framing below		
6	Interior gypsum board finish (or equivalent)	Any story	Omitted from inside face of braced wall panels	1.40	DWB, WSP, SFB, PBS, PCP, HPS, CS-WSP, CS-G, CS-SFB
7	Fastener spacing	Any story	4 inches o.c. at panel edges, including top and bottom plates, and all horizontal joints blocked	0.7	GB
				0.83	WSP, CS-WSP, CS-G
8	Horizontal blocking	Any story	Horizontal block is omitted	2.0	WSP, PBS, CS-WSP

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.48 N

- a. Linear interpolation shall be permitted.
- b. The total adjustment factor is the product of all applicable adjustment factors.
- c. The adjustment factor is permitted to be 1.0 when determining bracing amounts for intermediate braced wall lines provided the bracing amounts on adjacent braced wall lines are based on a spacing and number that neglects the intermediate braced wall line.
- d. The same adjustment factor shall be applied to all braced wall lines on all floors of the structure, based on the worst-case exposure category.

(tt) *Section R905.2.8.5, entitled "Drip edge," is amended to read as follows:*

R905.2.8.5 Drip edge. A corrosion-resistant metal drip edge of a minimum nominal 0.019-inch (0.5-mm) shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of drip edge shall be overlapped not less than 2 inches (51 mm). Drip edges shall extend not less than ¼-inch (6 mm) below the roof sheathing and extend up back onto the roof deck not less than 2 inches (51 mm). Drip edges shall be mechanically fastened to the roof deck at not more than 12 inches (305 mm) on center with fasteners as specified in Section R905.2.5. Underlayment shall be installed over the drip edge along eaves and under the drip edge along rake edges.

(uu) *Section R1004.1, entitled "General," is amended to read as follows:*

R1004.1 General. Factory-built fireplaces shall be listed and labeled and shall be

installed in accordance with the conditions of the listing. Factory-built fireplaces shall be tested in accordance with UL 127. New or altered solid-fuel burning, factory-built fireplace located in interior occupied spaces shall have one of the following permanently installed therein:

1. Approved gas logs.
2. Other approved gas or alcohol specific appliances.
3. A Phase III certified device as defined in the Colorado Department of Public Health and Environment, Air Quality Control Commission, Regulation Number 4 “Sale and Installation of Wood-Burning Appliances and the Use of Certain Wood-Burning Appliances during High Pollution Days,” or other solid fuel burning device meeting the most stringent emission standards for wood stoves established under state statute and/or regulations promulgated by the Colorado Air Quality Control Commission existing at the time of installation of the factory-built fireplace, as demonstrated by a test by an Environmental Protection Agency accredited laboratory and which is safety tested to Underwriter's Laboratory standards.

(vv) *Section R1004.4, entitled “Unvented gas log heaters,” is amended to read as follows:*

R1004.4 Unvented gas log heaters. An unvented gas log heater shall not be installed in a factory-built fireplace located in interior occupied spaces.

(ww) *Section N1101.2.1, entitled “When applicable,” is added to read as follows:*

N1101.2.1 When applicable. Construction for which a permit is submitted to the city on or after the effective date of the 2021 City of Commerce City Building Code shall comply with the provisions of this chapter, except for permit applications submitted prior to July 1, 2026. The applicant for a permit prior to July 1, 2026 shall be permitted to choose whether to comply with the residential energy provisions of this chapter or Chapter 11 of the 2018 International Residential Code as amended by the city.

(xx) *Section N1101.14, entitled “Certificate,” is amended to read as follows:*

N1101.14 (R401.3) Certificate. A permanent certificate shall be completed by the builder or other approved party and posted on a wall in the space where the furnace is located, a utility room or an approved location inside the building. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall indicate the following:

1. The predominant R-values of insulation installed in or on ceilings, roofs, walls, foundation components such as slabs, basement walls, crawl space walls and floors and ducts outside conditioned spaces.
2. U-factors of fenestration and the solar heat gain coefficient (SHGC) of

fenestration. Where there is more than one value for any component of the building envelope, the certificate shall indicate both the value covering the largest area and the area weighted average value if available.

3. The results from any required duct system and building envelope air leakage testing performed on the building.
4. The types, sizes and efficiencies of heating, cooling and service water-heating equipment. Where an electric furnace or baseboard electric heater is installed in the residence, the certificate shall indicate “electric furnace” or “baseboard electric heater,” as appropriate. An efficiency is not required to be indicated for electric furnaces and electric baseboard heaters.
5. Where on-site photovoltaic panel systems have been installed, the array capacity, inverter efficiency, panel tilt and orientation shall be noted on the certificate.
6. For buildings where an Energy Rating Index score is determined in accordance with Section N1106, the Energy Rating Index score, both with and without any on-site generation, shall be listed on the certificate.
7. The code edition under which the structure was permitted and the compliance path used.

(yy) *Section N1103.3.5, entitled “Duct testing,” is amended to read as follows:*

N1103.3.5 (R403.3.5) Duct testing. Ducts shall be pressure tested in accordance with ANSI/RESNET/ICC 380 or ASTM E1554 to determine air leakage by a rough-in test: total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. Registers shall be taped or otherwise sealed during the test.

Exception: A duct air-leakage test shall not be required for ducts serving heating, cooling or ventilation systems that are not integrated with ducts serving heating or cooling systems.

(zz) *Section N1103.3.6, entitled “Duct leakage,” is deleted in its entirety.*

(aaa) *Section M1401.1, entitled “Installation” is amended by the addition of the following:*

Unvented heating appliances and equipment shall not be installed in interior occupied spaces.

(bbb) *Section M1416, entitled “UNVENTED ALCOHOL FUEL-BURNING DECORATIVE APPLIANCES,” is added to read as follows*

SECTION M1416 – ALCOHOL FUEL-BURNING DECORATIVE APPLIANCES

M1416.1 General. The installation of unvented alcohol fuel-burning decorative

appliances shall be prohibited in interior occupied areas. The installation of unvented alcohol fuel-burning decorative appliances in exterior locations shall be listed and labeled in accordance with UL 1370 for exterior locations and shall be installed in accordance with the conditions of the listing, manufacturer's installation instructions and Chapter 13.

(ccc) *Section M1503.3, entitled "Exhaust discharge," is amended to read as follows:*

M1503.3 Exhaust discharge. Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct shall have a smooth interior surface, shall be airtight, shall be installed with positive slope towards the appliance or otherwise in a manner preventing accumulations of grease, shall be equipped with a backdraft damper and shall be independent of all other exhaust systems. Ducts serving domestic cooking exhaust equipment shall not terminate in an attic or crawl space or areas inside the building.

Exception: Where installed in accordance with the manufacturer's instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

(ddd) *Section M1801.1, entitled "Venting required," is amended to read as follows:*

M1801.1 Venting required. Fuel-burning appliances shall be vented to the outdoors in accordance with their listing and label and manufacturer's installation instructions. Venting systems shall consist of approved chimneys or vents or venting assemblies that are integral parts of labeled appliances. Gas-fired appliances shall be vented in accordance with Chapter 24.

(eee) *Section G2406.2, entitled "Prohibited locations," is amended to read as follows:*

G2406.2 (303.3) Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The appliance is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces are installed in rooms that meet the required volume criteria of Section G2407.5.
3. The appliance is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an approved self-closing device. Combustion air shall be taken directly from the outdoors in accordance with Section G2407.6.
4. A clothes dryer is installed in a residential bathroom or toilet room having

a permanent opening with an area of not less than 100 square inches (0.06 m²) that communicates with a space outside of a sleeping room, bathroom, toilet room or storage closet.

(fff) *Section G2415.12, entitled “Minimum burial depth,” is amended to read as follows:*

G2415.12 (404.12) Minimum burial depth. Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade, except for underground plastic piping systems which shall be installed a minimum depth of 18 inches below grade.

(ggg) *Section G2415.12.1, entitled “Individual outdoor appliances,” is deleted in its entirety.*

(hhh) *Section G2417.4, entitled “Test pressure measurement,” is amended to read as follows:*

G2417.4 (406.4) Test pressure measurement. Test pressure shall be measured with a manometer or with a pressure-measuring device designed and calibrated to read, record or indicate a pressure loss caused by leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made. Mechanical gauges used to measure test pressures shall have a range such that the highest end of the scale is not greater than 1½ times the test pressure.

(iii) *Section G2417.4.1, entitled “Test pressure,” is amended to read as follows:*

G2417.4.1 (406.4.1) Test Pressure and duration. The test pressure to be used shall be not less than 1½ times the proposed maximum working pressure, but not less than 20 psig (138 kPa gauge), for 15 minutes irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.

(jjj) *Section G2417.4.2, entitled “Test duration,” is deleted in its entirety.*

(kkk) *Section G2425.8, entitled “Appliances not required to be vented,” is amended to read as follows:*

G2425.8 (501.8) Appliances not required to be vented. The following appliances shall not be required to be vented:

1. Ranges.
2. Built-in domestic cooking units listed and marked for optional venting.
3. Hot plates and laundry stoves.
4. Type 1 clothes dryers (Type 1 clothes dryers shall be exhausted in accordance with the requirements of Section G2439).
5. Counter appliances.

Where counter appliances are installed so that the aggregate input rating exceeds 20 Btu per hour per cubic foot (207 W/m³) of volume of the room or space in which such appliances are installed, one or more shall be provided with venting systems or other approved means for conveying the vent gases to the outdoor atmosphere so that the aggregate input rating of the remaining unvented appliances does not exceed 20 Btu per hour per cubic foot (207 W/m³). Where the room or space in which the appliance is installed is directly connected to another room or space by a doorway, archway or other opening of comparable size that cannot be closed, the volume of such adjacent room or space shall be permitted to be included in the calculations.

(III) *Section G2445.1, entitled "General," is amended to read as follows:*

G2445.1 (621.1) General. Unvented room heaters shall be prohibited.

(mmm) *Sections G2445.2 through G2445.7 and G2445.7.1 are deleted in their entirety.*

(nnn) *Section P2503.5.1, entitled "Rough plumbing," is amended to read as follows:*

P2503.5.1 Rough plumbing. DWV systems shall be tested on completion of the rough piping installation by water, by air or by a vacuum of air for plastic piping systems, without evidence of leakage. The test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than 10 feet (3048 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34 kPa) or 10 inches of mercury column (34 kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.
3. Vacuum test. The portion under test shall be evacuated of air by a vacuum-type pump to achieve a uniform gauge pressure of -5 pounds per square inch or a negative 10 inches of mercury column (-34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes.

(ooo) *Section P2503.5.2, entitled "Finished plumbing," is amended to read as follows:*

P2503.5.2 Finished plumbing. After the plumbing fixtures have been set and their traps filled with water, their connections shall be tested and proved gastight or watertight as follows: each fixture shall be filled and then drained. Traps and fixture connections shall be proven watertight by visual inspection.

- (ppp) *Section P2503.6, entitled "Shower liner test," is deleted in its entirety.*
- (qqq) *Section P2503.7, entitled "Water-supply system testing," is amended to read as follows:*

P2503.7 Water-supply system testing. Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water pressure of not less than the working pressure of the system by an air test of not less than 50 psi (345 kPa). This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

Exception: For PEX piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by the manufacturer's instructions for the PEX pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws or regulations outside of this code.

- (rrr) *Section P2503.8.2, entitled "Testing," is deleted in its entirety.*
- (sss) *Section P2601.2, entitled "Connections to drainage system," is deleted in its entirety.*
- (ttt) *Section P2603.3, entitled "Protection against corrosion," is amended to read as follows:*

P2603.3 Protection against corrosion. Piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members. Piping shall not be placed in direct contact with concrete, masonry or corrosive soil. Where sheathing is used to prevent direct contact, the sheathing material thickness shall be not less than 0.025 inch (0.64 mm). Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

- (uuu) *Section P2603.5, entitled "Freezing," is amended to read as follows:*

P2603.5 Freezing. In localities having a winter design temperature of 32°F (0°C) or lower as shown in Table R301.2 of this code, a water, soil or waste pipe shall not be installed outside of a building, in exterior walls, in attics or crawl spaces or in any other place subjected to freezing temperature unless adequate provision is made to protect it from freezing by insulation or heat or both. Water service pipe shall be installed not less than 42 inches (1067 mm) below grade.

- (vvv) *Section P2603.5.1, entitled "Sewer depth," is amended as follows:*

P2603.5.1 Sewer depth. Building sewers shall be not less than 12 inches (305 mm) below grade.

(www) *Section P2605.2, entitled “Thermal expansion tanks,” is added to read as follows:*

P2605.2 Thermal expansion tanks. A thermal expansion tank shall be supported in accordance with the manufacturer’s instructions. Thermal expansion tanks shall not be supported by the piping that connects to such tanks.

(xxx) *Section P2705.1, entitled “General,” is amended to read as follows:*

P2705.1 General. The installation of fixtures shall conform to the following:

1. Floor-outlet or floor-mounted fixtures shall be secured to the drainage connection and to the floor, where so designed, by screws, bolts, washers, nuts and similar fasteners of copper, copper alloy or other corrosion-resistant material.
2. Wall-hung fixtures shall be rigidly supported so that strain is not transmitted to the plumbing system.
3. Where fixtures come in contact with walls and floors, the contact area shall be watertight.
4. Plumbing fixtures shall be usable.
5. Water closets and bidets. A water closet or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition or vanity or closer than 30 inches (762 mm) center-to-center between adjacent fixtures. There shall be a clearance of not less than 21 inches (533 mm) in front of a water closet or bidet to any wall, fixture or door.
6. Lavatories. A lavatory shall not be set closer than 12 inches (305 mm) from its center to any side wall or partition or closer than 30 inches (762 mm) center-to-center between lavatories. There shall be a clearance of not less than 21 inches (533 mm) in front of a lavatory to any wall, fixture or door.
7. The location of piping, fixtures or equipment shall not interfere with the operation of windows or doors.
8. In flood hazard areas as established by Table R301.2, plumbing fixtures shall be located or installed in accordance with Section R322.1.6.
9. Integral fixture-fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site shall meet the design requirements of ASME A112.19.2/CSA B45.1 or ASME A112.19.3/CSA B45.4.

(yyy) *P2706.1, entitled “General,” is amended to read as follows:*

P2706.1 General. For other than hub drains that receive only clear-water waste and standpipes, a removable strainer or basket shall cover the waste outlet of waste receptors. Waste receptors shall not be installed in concealed spaces. Waste receptors shall not be installed in plenums, attics, crawl spaces or interstitial spaces

above ceilings and below floors. Waste receptors shall be readily accessible.

Exception: Where equipment is installed in a crawl space, a waste receptor shall be allowed with an approved backwater valve installed.

(zzz) *Section P2708.3, entitled "Water supply riser," is amended by the addition of the following:*

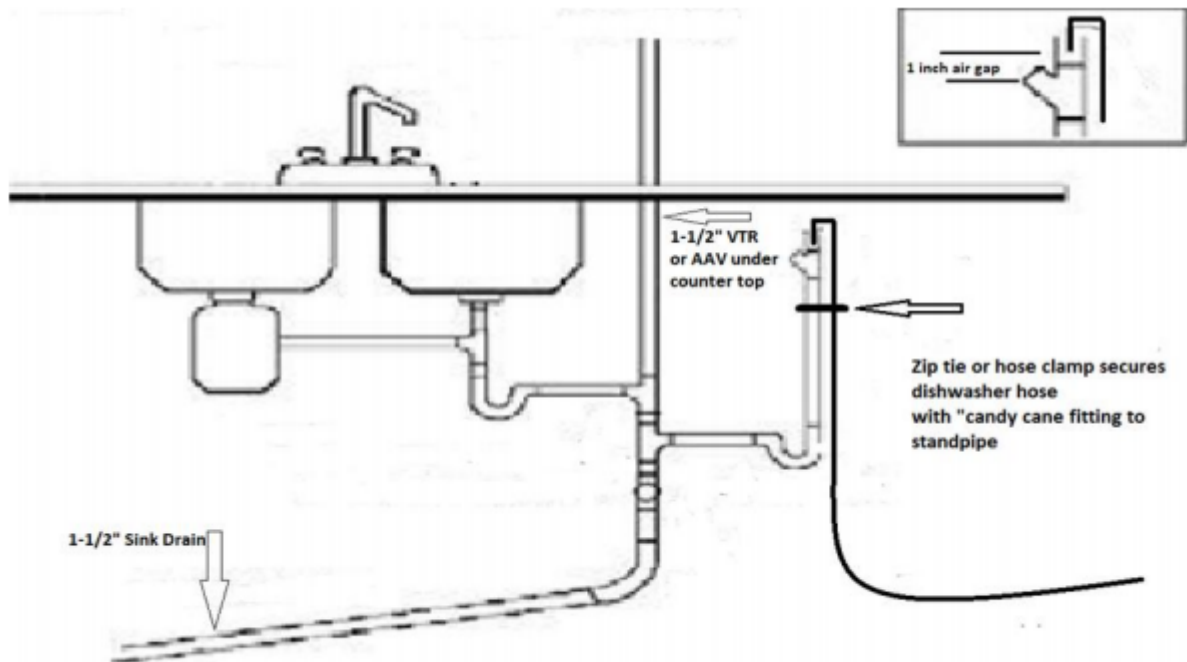
The rough-in height shall not be less than 75 inches (1905 mm) above the shower or tub drain.

(aaaa) *Section P2708.6, entitled "Shower head location," is added to read as follows:*

P2708.6 Shower head location. Shower heads shall be so located on the sidewall of shower compartments or be arranged so the shower head does not discharge directly at the entrance to the compartment such that the occupant can adjust the valve prior to stepping into the shower spray.

(bbbb) *Section P2717.3, entitled "Dishwasher drain," is added to read as follows:*

P2717.3 Dishwasher drain. Dishwashers may drain into a standpipe complying with Section P2706.2 as shown in Figure P2717.3. The standpipe shall be provided with an air break.



**FIGURE P2717.3
DISHWASHER DRAIN**

(cccc) *Section P2801.6, entitled "Required pan," is amended to read as follows:*

P2801.6 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause

damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other approved materials.

A plastic pan beneath a gas-fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

Exception: Where the building official deems it impractical to install a pan for a replacement water heater due to space restrictions, a water alarm device may be used in lieu of the pan.

(dddd) *Section P2804.6.2, entitled "Collection of relief valve discharge," is added to read as follows:*

P2804.6.2 Collection of relief valve discharge. A means shall be provided to capture the discharge from a relief valve and convey it to the sanitary drainage system or exterior of the structure either by gravity or a pumped discharge.

Exceptions:

1. Replacements of existing water heaters.
2. Where a water sensing device wired to a normally closed solenoid valve installed in the water supply piping to the heater, is placed within the water heater drain pan.

(eeee) *Section P2804.6.2.1, entitled "Pumped discharge of relief valve collection," is added to read as follows:*

P2804.6.2.1 Pumped discharge of relief valve collection. Pumps used to discharge the clear water collection of relief valves shall have an operating temperature equal to or exceeding that of the relief valve discharge temperature and shall have a gallons per minute (L/min) rating equal to or greater than the discharge of the relief valve.

(ffff) *Section P2901.2.1, entitled "Signage required," is amended to read as follows:*

P2901.2.1 Signage required. Nonpotable water outlets such as hose connections, open-ended pipes and faucets shall be identified with signage that reads as follows: "Nonpotable water is utilized for this fixture. CAUTION: NONPOTABLE WATER. DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and in colors in contrast to the background on which they are applied. In addition to the required wordage, the pictograph shown in

Figure P2901.2.1 shall appear on the required signage.

(gggg) *Section P2901.2.3, entitled “Graywater for toilet flushing,” is added to read as follows:*

P2901.2.3 Graywater for toilet flushing. Graywater used for toilet flushing shall be dyed with blue or green food grade vegetable dye and be visibly distinct from potable water.

(hhhh) *Section P2902.5.1.1, entitled “Essentially nontoxic fluid conditioning chemical,” is added to read as follows:*

P2902.5.1.1 Essentially nontoxic fluid conditioning chemical. When the conditioning chemical introduced is an essentially nontoxic transfer fluid the potable supplier to the boiler shall, at a minimum, be equipped with a backflow preventer with an intermediate atmospheric vent complying with ASSE 1012 or CSA B64.3.

(iiii) *Section P2902.5.6, entitled “Connection to graywater system,” is added to read as follows:*

P2902.5.6 Connection to graywater system. The potable water system connection to a graywater system must be protected against backflow by an air gap or reduced pressure principle backflow prevention assembly.

(jjjj) *Section P2903.3.2, entitled “Maximum pressure,” is amended to read as follows:*

P2903.3.2 Maximum pressure. The static water pressure shall be not greater than 80 psi (551 kPa). An approved pressure-reducing valve conforming to ASSE 1003 shall be installed on the domestic water branch main or riser at the connection to the water service pipe.

(kkkk) *Section P2903.9.1, entitled “Service valve,” is amended to read as follows:*

P2903.9.1 Service valve. Each dwelling unit shall be provided with an accessible main shutoff valve near the entrance of the water service. The valve shall be of a full-open type having nominal restriction to flow. Additionally, the water service shall be valved at the curb or lot line in accordance with local requirements.

(llll) *Section P2904.1, entitled “General,” is amended to read as follows:*

P2904.1 General. The design and installation of residential automatic sprinkler systems shall be in accordance with Section P2904. Partial residential sprinkler systems shall be permitted to be installed only in buildings not required to be equipped with a residential sprinkler system. Section P2904 shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall provide domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the water distribution system. A backflow preventer shall not be required to separate a sprinkler system from the water distribution

system, provided that the sprinkler system complies with all of the following:

1. The system complies with Section P2904.
2. The piping material complies with Section P2906.
3. The system does not contain antifreeze.
4. The system does not have a fire department connection.

(mmmm) *Section P2904.6.1, entitled “Method of sizing pipe,” is amended to read as follows:*

P2904.6.1 Method of sizing pipe. Piping supplying sprinklers shall be sized using the prescriptive method in Section P2904.6.2. The minimum pipe size from the water supply source to any sprinkler shall be $\frac{3}{4}$ inch (19 mm) nominal. Threaded adapter fittings at the point where sprinklers are attached to the piping shall be not less than $\frac{1}{2}$ inch (13 mm) nominal.

(nnnn) *Section P2910.1, entitled “Scope,” is amended by the addition of the following:*

Plumbing systems utilizing nonpotable water reuse systems shall have a double check valve installed at the water service entrance immediately downstream of the building water service shut off valve.

(oooo) *Section P2910.2.2, entitled “Filtration required,” is amended to read as follow:*

P2910.2.2 Filtration required. Nonpotable water utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

Exception: Reclaimed water sources shall not be required to comply with these requirements. Graywater treatment systems installed in accordance with Section P2911.6.1 do not need to meet additional filtration requirements.

(pppp) *Section 2910.9.3, entitled “Materials,” is amended to read as follows:*

P2910.9.3 Materials. Where collected on site, water shall be collected in an approved tank constructed of durable, nonabsorbent and corrosion-resistant materials. The storage tank shall be constructed of materials compatible with any disinfection systems used to treat water upstream of the tank and with any systems used to maintain water quality within the tank. Wooden storage tanks that are not equipped with a makeup water source shall be provided with a flexible liner.

Exemption. Tanks are not required if the graywater use is comprised of only subsurface irrigation and flows into a mulch basin system, where the mulch basin volume is three times the anticipated average daily flow.

(qqqq) *Section P2911.1.1, entitled “Typical graywater collection systems,” is added to read as follows:*

P2911.1.1 Typical graywater collection systems. Graywater collection systems shall be designed and constructed in accordance with Figure P2911.1.1.

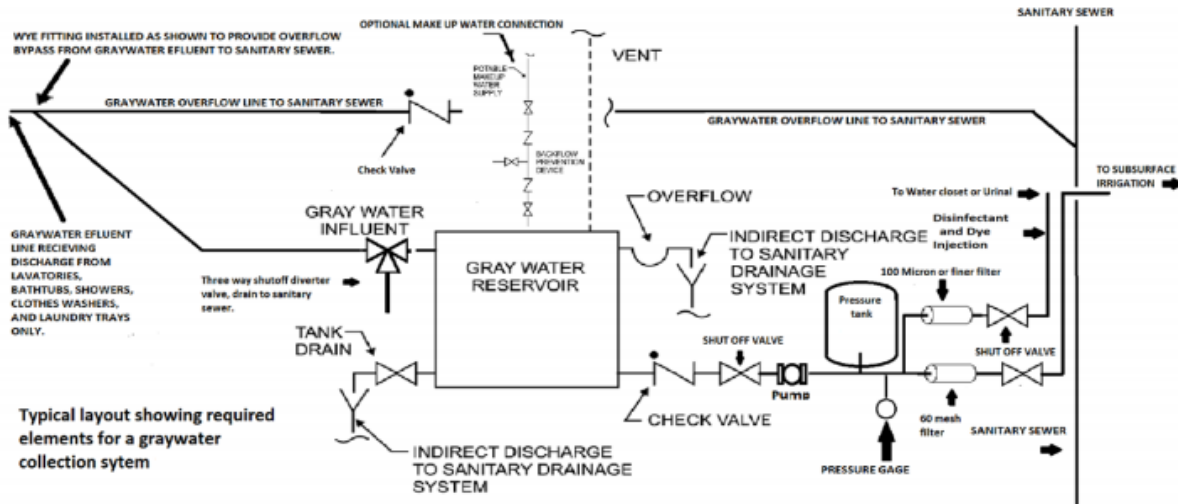


FIGURE P2911.1.1 TYPICAL GRAYWATER COLLECTION SYSTEM
(This figure is typical only, not a schematic)

(rrrr) Section P2911.1.2, entitled "Typical graywater system for toilet flushing," is added to read as follows:

P2911.1.2 Typical graywater system for toilet flushing. Graywater systems for toilets flushing shall be designed and constructed in accordance with Figure P2911.1.2.

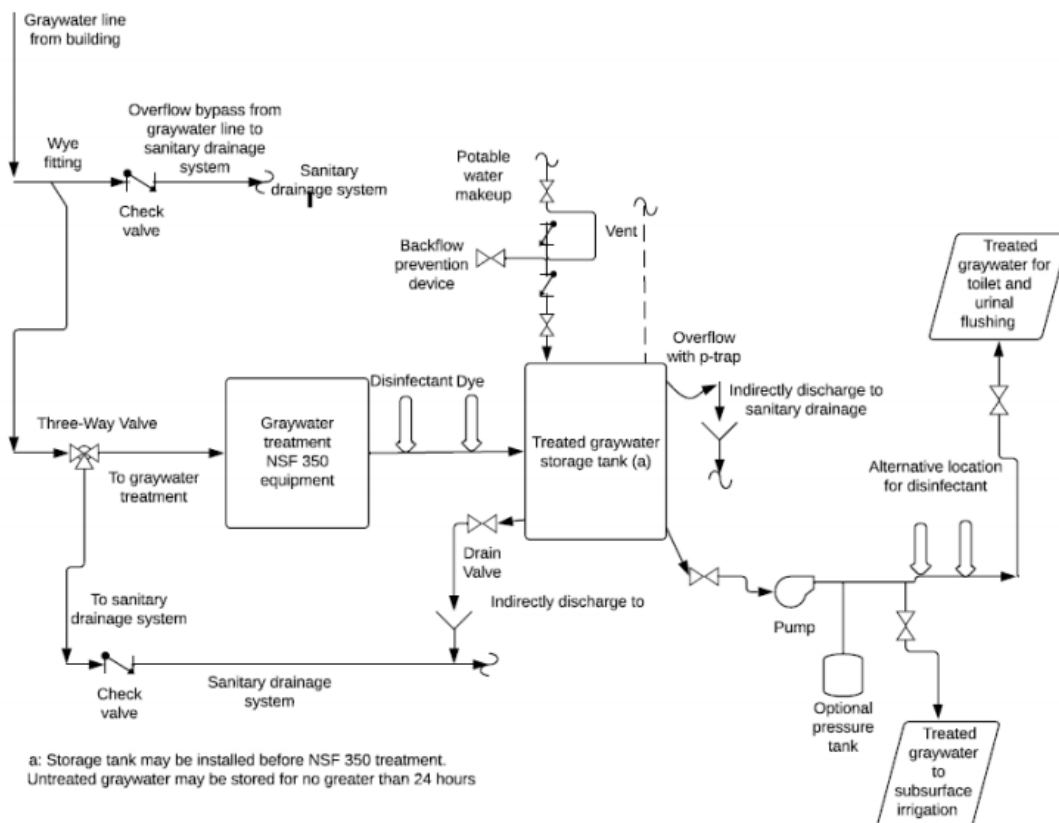


FIGURE P2911.1.2 TYPICAL GRAYWATER SYSTEM FOR TOILET FLUSHING

(This figure is typical only, not a schematic)

(ssss) Section P2911.1.3, entitled “Typical graywater system for disbursed subsurface irrigation,” is added to read as follows:

P2911.1.3 Typical graywater system for disbursed subsurface irrigation.

Graywater systems for disbursed subsurface irrigation shall be designed and constructed in accordance with Figure P2911.1.3.

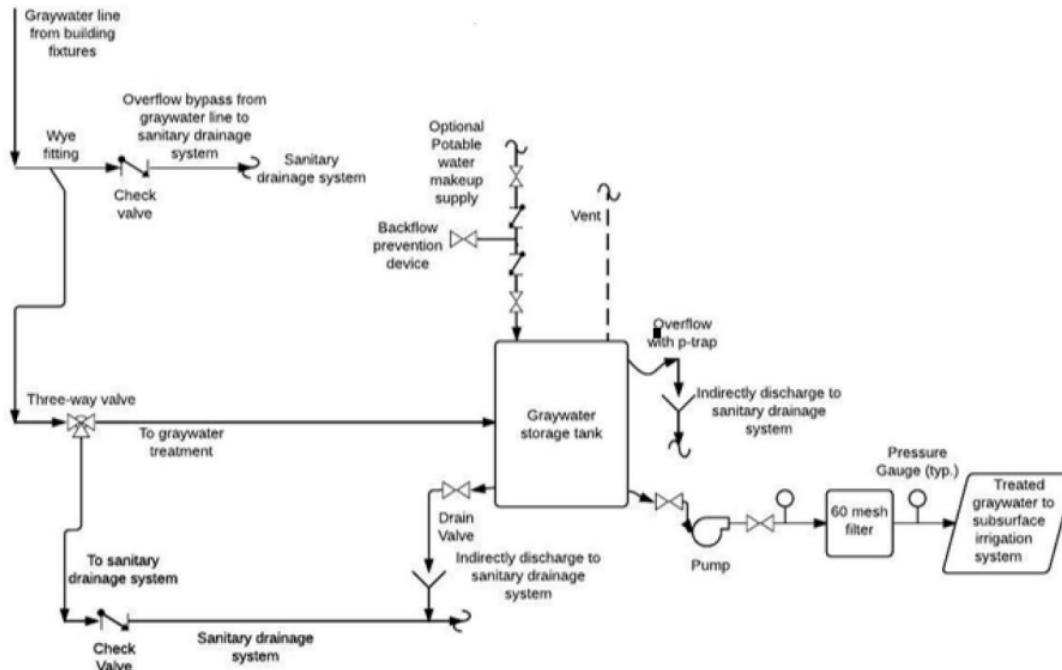


FIGURE P2911.1.3 TYPICAL GRAYWATER SYSTEM FOR DISBURSED SUBSURFACE IRRIGATION

(This figure is typical only, not a schematic)

(tttt) Section P2911.1.4, entitled “Typical graywater system for mulch basin subsurface irrigation,” is added to read as follows:

P2911.1.4 Typical graywater system for mulch basin subsurface irrigation.

Graywater systems for mulch basin subsurface irrigation shall be designed and constructed in accordance with Figure P2911.1.4.

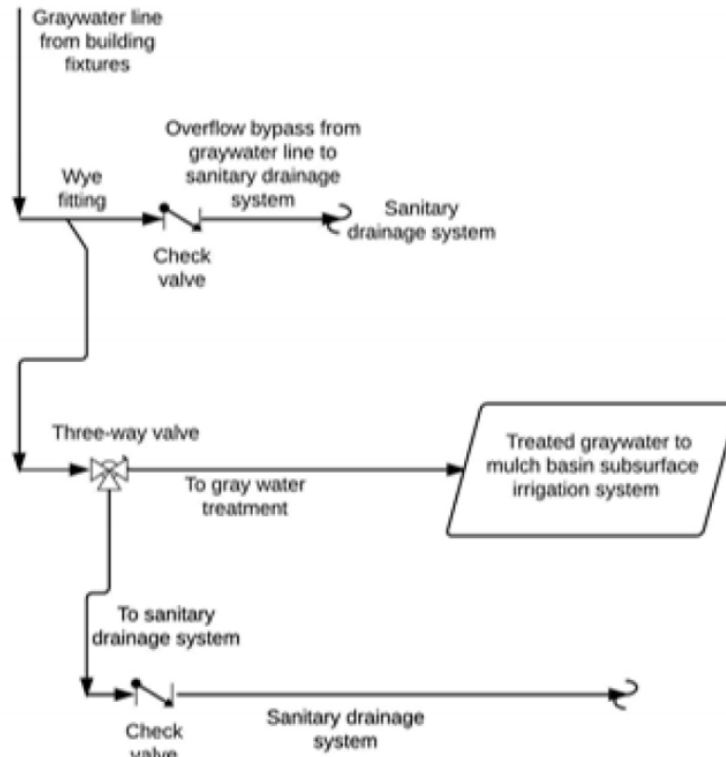


FIGURE P2911.1.4 TYPICAL GRAYWATER SYSTEM FOR MULCH BASIN SUBSURFACE IRRIGATION

(This figure is typical only, not a schematic)

(uuuu) *Section P2911.5.1, entitled “Filtration for graywater used for dispersed subsurface irrigation systems,” is added to read as follows:*

P2911.5.1 Filtration for graywater used for dispersed subsurface irrigation systems. Graywater used for dispersed subsurface irrigation system requires a cartridge filter as shown in Figure P2910.17. The cartridge filter must be a minimum of 60 mesh located between the storage tank and the irrigation system. If a pump is being used to pressure the graywater distribution system, the filter must be located after the pump.

(vvvv) *Section P2911.7.4, entitled “Overflow,” is added to read as follows:*

P2911.7.4 Overflow. Storage tank for on-site non-potable systems must include an overflow line without a shut off valve. The overflow line shall be connected to the sanitary sewer either directly or indirectly. The overflow line must be the same or larger diameter line than the tank influent line. The overflow line connected indirectly must be trapped to prevent the escape of gas vapors from the tank.

(www) *Section P2911.7.5, entitled “Venting,” is added to read as follows:*

P2911.7.5 Venting. Storage tank for on-site non-potable systems must be vented to the atmosphere or connected to the plumbing system vent piping.

(xxxx) *Section P2911.7.6, entitled “Drainage of tanks,” is added to read as follows:*

P2911.7.6 Draining of tanks. Storage tanks for on-site non-potable systems must include a valved drain. The drain line shall be connected to the sanitary sewer either directly or indirectly. The tank drain line must be the same or larger diameter line than the tank influent line.

(yyyy) *Section 2911.8.1, entitled “Bypass valve,” is amended to read as follows:*

P2911.8.1 Bypass valve. One three-way diverter valve listed and labeled to NSF 50 or other approved device shall be installed on collection piping upstream of any graywater treatment equipment, as applicable, to divert untreated on-site reuse sources to the sanitary sewer to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be marked to indicate the direction of flow, connection and storage tank or drainfield connection. Bypass valves shall be installed in accessible locations. Two shutoff valves shall not be installed to serve as a bypass valve. In addition to the bypass valve a series of drainage fittings shall be installed in the collection piping upstream of the bypass valve in a configuration that will allow the graywater from the plumbing fixtures to automatically flow directly into the sanitary sewer system in the event the filter or other parts of the collection system become clogged to the point of not allowing the effluent free flow through the system. The overflow line connected to the sanitary sewer shall be equipped with a backwater valve.

(zzzz) *Section P3003.9.2, entitled “Solvent cementing,” is deleted in its entirety.*

(aaaaa) *Table P3005.1, entitled “FITTINGS FOR CHANGE IN DIRECTION,” is amended to read as follows:*

**TABLE P3005.1
FITTINGS FOR CHANGE IN DIRECTION**

TYPE OF FITTING PATTERN	CHANGE IN DIRECTION		
	Horizontal to vertical ^a	Vertical to horizontal	Horizontal to horizontal
Sixteenth bend	X	X	X
Eighth bend	X	X	X
Sixth bend	X	X	X
Quarter bend	X	X	X
Short sweep	X	X	X
Long sweep	X	X	X
Sanitary tee	X ^a	—	—
Wye	X	X	X
Combination wye and	X	X	X

eighth bend			
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For SI: 1 inch = 25.4 mm.

- a. For a limitation on double sanitary tees, see Section 706.3.

(bbbbbb) *Section P3005.1.1, entitled “Horizontal to vertical (multiple connection fittings),” is amended to read as follows:*

P3005.1.1 Horizontal to vertical (multiple connection fittings). Double fittings such as double sanitary tees and tee-wyes or approved multiple connection fittings and back-to-back fixture arrangements that connect two or more branches at the same level shall be permitted as long as directly opposing connections are the same size and the discharge into directly opposing connections is from similar fixture types or fixture groups. Double sanitary tee patterns shall not receive the discharge of back-to-back water closets and fixtures or appliances with pumping action discharge.

(ccccc) *Section P3005.2.3, entitled “Building drain and building sewer junction,” is amended to read as follows:*

P3005.2.3 Building drain and building sewer junction. The junction of the building drain and the building sewer shall be served by a cleanout that is located at the junction or within 10 feet (3048 mm) developed length of piping upstream of the junction. For the requirements of this section, removal of a water closet shall not be required to provide cleanout access. When the cleanout is installed at the junction of the building drain and building sewer it shall be an approved two way fitting with a single riser not to exceed 4 feet (1220 mm) in depth or a two riser cleanout using back to back combination fittings of Schedule 40 material.

(ddddd) *Section P3008.1, entitled “Where required,” is amended to read as follow:*

P3008.1 Where required. Backwater valves shall be installed where waste receptors are located in a crawl space for the purpose of receiving condensate discharge from equipment located in that crawl space.

(eeeeee) *Section P3009, entitled “GRAYWATER SOIL ABSORPTION SYSTEMS,” is deleted in its entirety.*

(fffff) *Section P3103.2, entitled “Frost closure,” is deleted in its entirety.*

(ggggg) *Section P3108.1, entitled “Horizontal wet vent permitted,” is amended to read as follows:*

P3108.1 Horizontal wet vent permitted. Any combination of fixtures within two bathroom groups located on the same floor level shall be permitted to be vented by a horizontal wet vent. The wet vent shall be considered to be the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain connection. Each fixture drain shall connect horizontally to the horizontal branch being wet vented or shall

have a dry vent. Each wet-vented fixture drain shall connect independently to the horizontal wet vent. Only the fixtures within the bathroom groups shall connect to the wet-vented horizontal branch drain. Any additional fixtures shall discharge downstream of the horizontal wet vent.

Exception: Fixtures other than those considered to be bathroom group fixtures, of equivalent drainage fixture units, may be included in the wet vented section provided the total number of drainage fixture units does not exceed the total number included in two bathroom groups.

(hhhhh) *Table P3201.7, entitled "SIZE OF TRAPS FOR PLUMBING FIXTURES," is amended to read as follows:*

**TABLE P3201.7
SIZE OF TRAPS FOR PLUMBING FIXTURES**

PLUMBING FIXTURE	TRAP SIZE MINIMUM (inches)
Bathtub (with or without shower head and/or whirlpool attachments)	1½
Bidet	1¼
Clothes washer standpipe	2
Dishwasher (on separate trap)	1½
Floor drain	2
Kitchen sink (one or two traps, with or without dishwasher and food waste disposer)	1½
Laundry tub (one or more compartments)	1½
Lavatory	1¼
Shower (based on the total flow rate through showerheads and body sprays)	
Flow rate:	2
5.7 gpm and less	2
More than 5.7 gpm up to 12.3 gpm	3
More than 12.3 gpm up to 25.8 gpm	4
More than 25.8 gpm up to 55.6 gpm	

For SI: 1 inch = 25.4 mm, 1 gallon per minute = 3.785 L/m.

(iiii) *Section P3302.1, entitled "Subsoil drains," is amended to read as follows:*

P3302.1 Subsoil drains. Subsoil drains shall be open-jointed, horizontally split or perforated pipe conforming to one of the standards indicated in Table P3302.1. Such drains shall be not less than 4 inches (102 mm) in diameter. Where the

building is subject to backwater, the subsoil drain shall be protected by an accessibly located backwater valve. Subsoil drains shall discharge to a trapped area drain, sump, dry well or approved location above ground. Discharge into the sanitary sewer drainage system is prohibited. The subsoil sump shall not be required to have either a gastight cover or a vent. The sump and pumping system shall comply with Section P3303.

(jjjjj) *Chapters 34 through 43 are deleted in their entirety and replaced with the following in lieu thereof:*

Installations of electrical systems, equipment and components for one- and two-family dwellings shall comply with the 2023 National Electrical Code® (NEC®) (NFPA 70®-2023).

(kkkkk) *Section AM105, entitled “BASEMENT HABITABLE SPACES,” is added to read as follow:*

SECTION AM105 - BASEMENT HABITABLE SPACES

AM105.1 General. If a dwelling basement is to be used for day-care operations, all rooms, spaces and areas of the basement to be utilized in whole or in part for day-care operations must be finished as habitable space in accordance with the definition in Section R202 and other applicable provisions of this code.

AM105.2 Light, ventilation and heating. All habitable rooms, spaces and areas of basements shall be provided with light, ventilation and heating in accordance with Section R303.

AM105.3 Minimum room areas. All habitable rooms, spaces and areas of basements shall conform to minimum room areas in accordance with Section R304.

AM105.4 Ceiling heights. All habitable rooms, spaces and areas of basements shall conform to minimum ceiling height requirements in accordance with Section R305.

AM105.5 Guards. Guards shall be provided in basements in accordance with Section R312.

AM105.6 Carbon monoxide alarms. Carbon monoxide alarms shall be provided in basements in accordance with Section R315.1 as amended by the city.

AM105.7 Foam plastic. Foam plastic in basements shall conform to provisions of Section R316.

AM105.8 Access prohibited to unfinished, uninhabitable areas, hazardous areas, mechanical rooms and storage rooms. Access by children to unfinished or uninhabitable rooms, spaces and areas; hazardous spaces and areas; mechanical and storage rooms, spaces or areas; or similar is prohibited.

AM105.9 Operations prohibited in floodplains. In home day-care operations are prohibited in any existing dwelling or dwelling unit located within the designated

100-year floodplain.

****END OF EXHIBIT A****